

Notice of Allowability

Application N .

09/526,366

Examiner

Armando Rodriguez

Applicant(s)

ITOH, KATSUHISA

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed February 9, 2004.
2. ☒ The allowed claim(s) is/are 1-20.
3. ☒ The drawings filed on 16 March 2000 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☒ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 4-21-2004
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mathew R. Schantz on April 20, 2004.

The application has been amended as follows:

7. (Currently Amended) A laser device for generating a laser beam by supplying a pumping light to an optical fiber, said optical fiber having a core in which a laser medium is doped and a cladding covering said core, said laser device comprising:

an optical fiber bundle in which at least two discontinuous segments of an optical fiber forming at least one optical path are bundled,

a pumping light introducing portion for introducing pumping light for pumping said laser medium in said optical fiber, said pumping light introducing portion being bundled together with said optical fiber in said optical fiber bundle,

a fluid medium having a refractive index substantially identical to the cladding at a wavelength of the pumping light,

a pumping light reflection portion having an interior reflective surface defining an inner space filled with said fluid medium, the inner space covering at least a part of a side surface of said optical fiber bundle for repeatedly reflecting the pumping light so that said pumping light is absorbed in said laser medium, and

a laser output portion for outputting a laser beam generated by said laser medium pumped by said pumping light.

12. (Currently Amended) An optical signal amplifier for amplifying an optical signal by using an optical fiber, said optical fiber having a core in which a laser medium is doped and a cladding covering said core, said optical signal amplifier comprising:
- an optical fiber bundle in which at least two discontinuous segments of an optical fiber forming at least one optical path are bundled,
 - a pumping light introducing portion for introducing pumping light for pumping said laser medium in said optical fiber bundle, said pumping light introducing portion being bundled together with said optical fiber bundle,
 - a fluid medium having a refractive index substantially identical to the cladding at a wavelength of the pumping light,
 - a pumping light reflection portion having an interior reflective surface defining an inner space filled with said fluid medium, the inner space covering at least a part of a side surface of said optical fiber bundle for repeatedly reflecting the pumping light so that said pumping light is absorbed in said laser medium, and
 - an output portion for outputting an optical signal amplified by said laser medium pumped by the pumping light.

The following is an examiner's statement of reasons for allowance:

After reviewing applicant's amendment, arguments and conducting an updated search none of the cited prior arts alone or in combination discloses the claimed laser and optical signal amplifier having the recited limitations of independent claims 1,6,7 and 12, where an optical fiber having a core and a cladding are disposed within a pumping light reflecting portion and a flowing fluid medium having a refractive index substantially identical to the cladding is provided to flow within the reflecting portion to prevent deterioration of the fluid medium caused by heat generation, thereby obtaining a high optical energy resistance laser device and optical signal amplifier.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

Art Unit: 2828

accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Armando Rodriguez whose telephone number is 571-272-1952. The examiner can normally be reached on flex / M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on 571-272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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Art Unit 2828

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AR/DW


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Primary Examiner